SVT Quick Reference Manual-Run III

David Lynn 12/27/02 Version 2.1

Temporary Modifications

Temporary modifications to the operating procedures described in this handbook are listed in the SVT Operations Handbook located in the STAR Control Room at the SVT station. These modifications are the usually the result of a hardware malfunction. Consult this section first before operating the SVT.

Beam-Fill

The SVT should be powered down (except for RDOs) during beam-fills and beam-dumps. Use “Power Off-Leave RDOs on” button from the “Detector Operators” slow controls panel.

Computer/Slow Controls/Desktop

The computer used to operate the SVT is svtmonitor.starp.bnl.gov. It is a Sun Solaris/unix machine. Users should access the computer via the following account.
Username = ******
Password = ******

Svtmonitor uses the desktop environment and there should always be the following desktops available:

- Water System

  A console or x-terminal is used to control the water system.

- Alarms

  This is where the epics alarm handler is run. If the alarm handler is not running type "svt_alarms" from the Alarm desktop to start the alarm handler.

- Slow Controls

  This is where the epics program to operate/monitor the SVT is run. If the program is not up and running then type "svt_start" from the Slow Controls desktop and the slow controls program will start.

- vdgvme

  This is where a console/terminal window to the slow controls VME crate is found. If the connection to the VME crate is missing, one can open a console window on the desktop and then type “vdgvme” to connect to the VME crate. This desktop is not normally used by detector operators.

- Monitoring

  Has a panel showing pressure and temperatures in the SVT water system. Also has a web page showing long term behavior of water pressures.

- SC mods

  Working desktop. Not normally used by detector operators.

Emergency Shutdown Procedures

A. SVT water system shutdown (emergency)

telnet svtac1.starp.bnl.gov (usually from Water System desktop, but any desktop will do)
password=******
type: **/off 3+5** (Note: type exactly as shown in boldface including the "/")
type: **/off 4**
type: **/on 4**

The water system and the SVT voltages should have shut off. Verify the SVT voltages are off via HV panel and LV panel (may take a minute or two to register). If not carefully repeat steps above.

B. **Detector shutdown (emergency)**

On svtmonitor.starp.bnl.gov (username = ******, password=******) go to the slow controls main panel running on the Slow Controls desktop (or type type "svt_start" to start program). The main panel (Detector Operator Panel) is shown below.

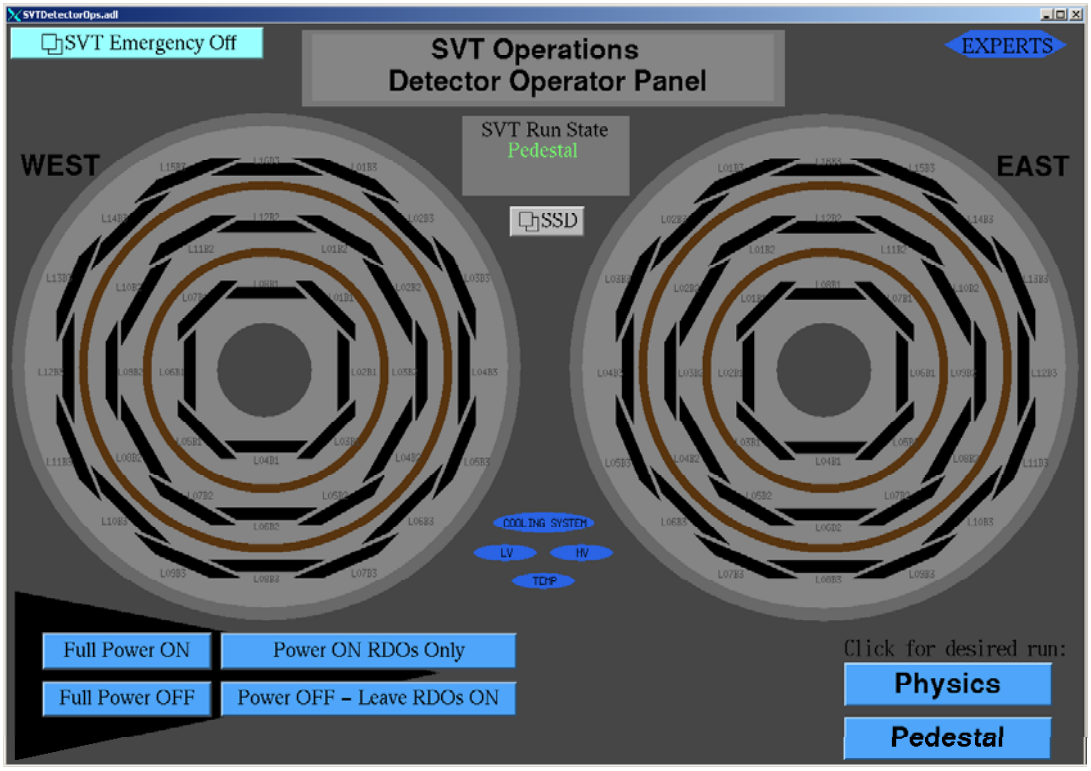


Figure 1. Main (Detector Operator) Panel

Click on "SVT Emergency Off" in upper left corner. A pop-up window will appear and click on the "!". Only do this in case of emergency. Otherwise follow the normal power-off procedure. An equivalent method is to type from any terminal window "svt_shutdown".

If for some reason this does not work (e.g. loss of slow controls communication), then an alternative is to shut the SVT down via the interlocks associated with the water system. Follow the steps in **"**SVT water system shutdown (emergency)**"** above. The water pump and all detector voltages should instantly crash.

Normal Power-up Procedure:

A. From Detector Operator Panel click on “Expert” in upper right corner.

B. Check the interlocks panel (from the Expert’s panel) to see that all the interlocks are green so that "SVT LV Permission" is also green. If an interlock is red it is not possible to turn on the SVT. Contact an SVT expert.

C. Go back to the Detector Operator panel and press “Full Power On”.

D. On Detector Operator panel you will see a message in green “Now Powering Up the SVT”. When the SVT is fully powered this message will disappear and all of the ladder polygons on the Detector Operator Display will turn green.

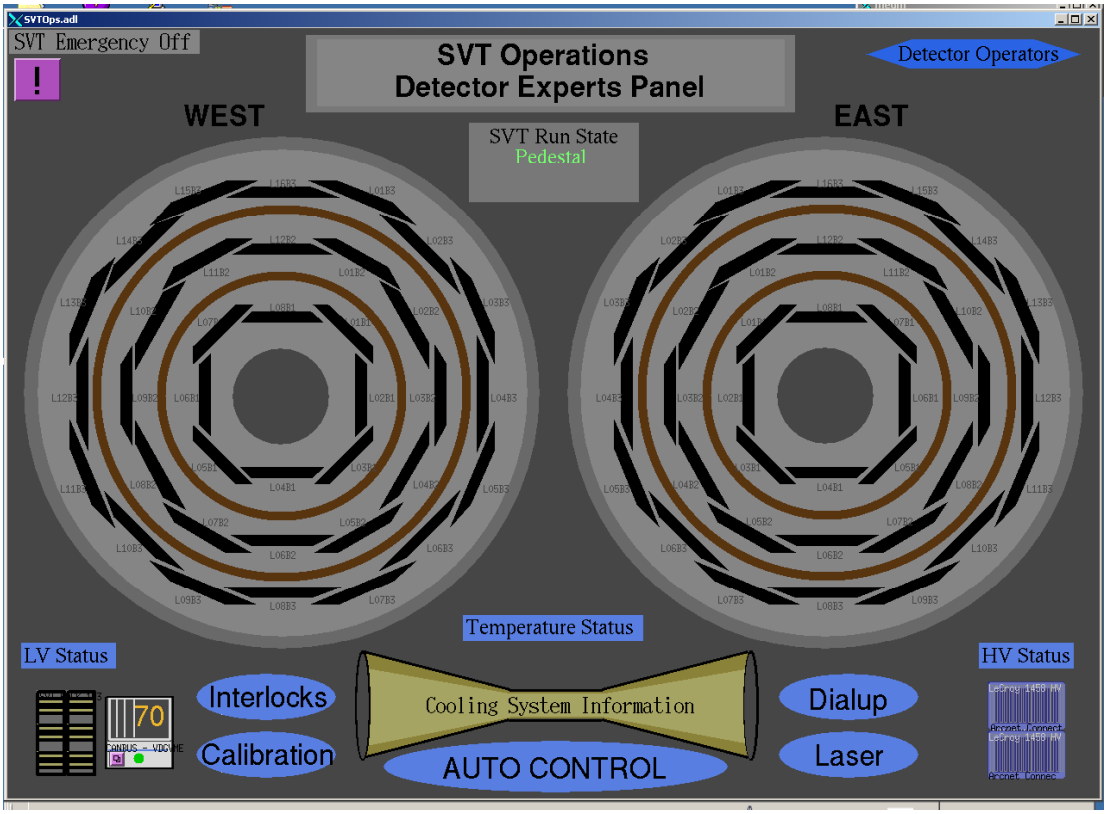


Figure 2. Experts Panel

Normal Power-down Procedure

Go to the Main (Detector Operator) Panel. Click on "Full Power Off-Leave RDOs On". General philosophy this year (RunIII) is to leave RDOs on at all times.

Voltages

For reference the voltages used by the SVT are listed below.

First floor racks, south platform.

24 unregulated supplies. Each sends approximately +/-8 volts to a RDO box.

2 Lecroy HV mainframes. Provide a total of 72 outputs of 1500 volts to the ladders.

RDOs

` Generate from the unregulated +/-8 voltages the following voltages to the detector

V1 ≈ 5 V to front-end preamplifiers
V2 ≈ 5 V to front-end preamplifiers
V- ≈ -2 V to front-end preamplifiers
V3 ≈ 5 V to front-end switched capacitor arrays
+6 ≈ +6 V to front-end opamps
-6 ≈ -6 V to front-end opamps

Lecroy high voltages pass through RDOs directly to the detector ladders.

Interlocks

There are six interlocks/permissions used by the SVT. They are:

- **Leak**: Indicates whether any of the trace-tek in STAR detects a leak. This is provided to the SVT from the SGIs via the TPC interlocks.
- **Global**: Indicates whether a variety are global permissions are satisfied. This is provided to the SVT from the SGIs via the TPC interlocks.

The remaining four permissions are determined by sensors internal to the SVT water system.

- **Flow**: Indicates whether there is flow in the SVT water system.
- **Temperature**: Indicates whether the SVT water is too hot (> 105° F).
- **Pressure**:Indicates whether the SVT water system pressure is approaching atmospheric pressure.
- **Vac-Leak**: Indicates whether water is getting into the vacuum pump

The interlock status panel is accessible from the Expert's panel by clicking on "Interlocks". The following panel will appear. For each interlock its status is given by its color (green = pass, red = fail). More detail on the SVT interlocks is given in the section on the water system.

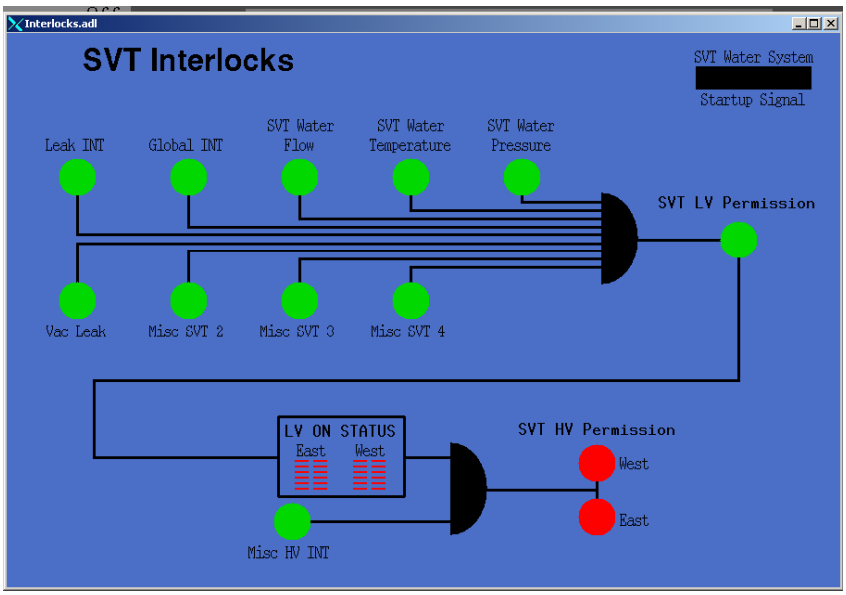


Figure 3. Interlock Status Display Panel

Monitoring

There are a variety of monitoring panels that are accessible from the main panel as well as the Expert's panel. The main ones are:

- SVT Temperature Status: shows temperatures on all the ladders. Will only read non-zero if power to the detector is on. L09B2 West (North EC and South EC) does not work and this is indicated by the darker shading over these indicators. The temperatures should normally read about 23°C +/- 2°C.

- The LV Panel indicates that the low voltages to the detector are nominally within their proper range. Green indicates they are within proper operating voltages. Red indicates they are outside operating voltages.

- The HV panel indicates the high voltage going to each ladder and the current. Voltages should be 1500 V +/- 10V and the current should be 4500-5500 μA. Additionally this panel indicates guard ring and anode currents on the detectors (LGR, LGA, RGR, RGA) but these do not have to be monitored by the operator.

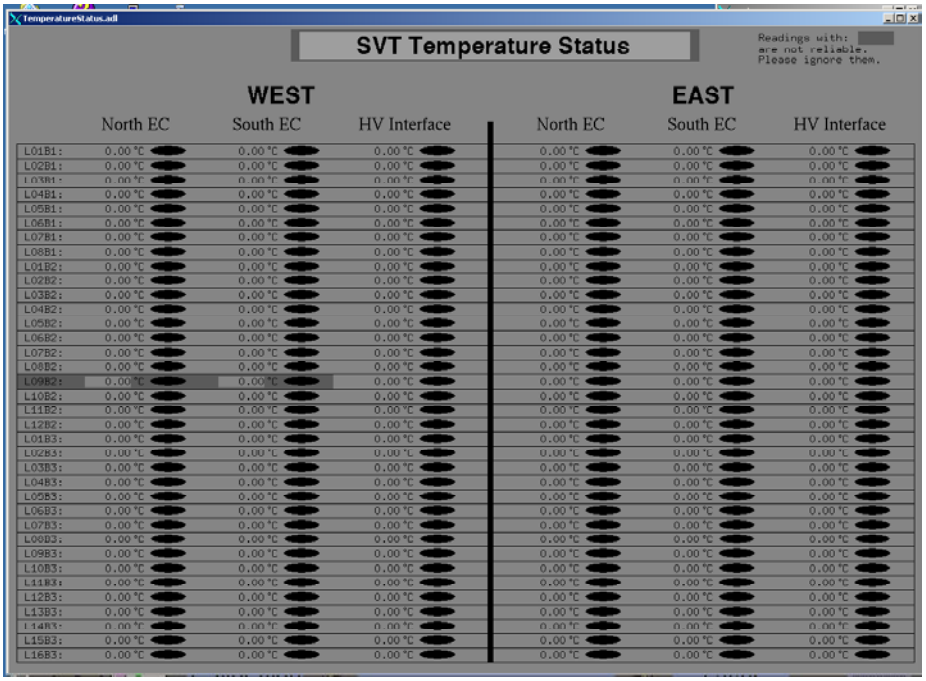


Figure 4. Temperature Monitor Panel

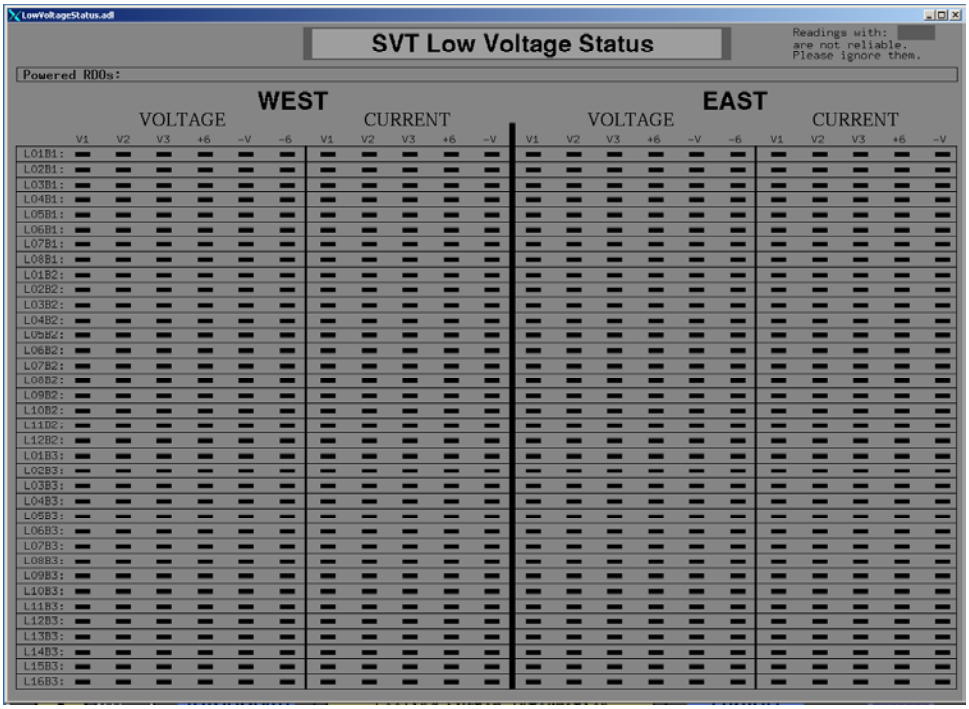


Figure 5. Detector Low Voltage Monitor Panel

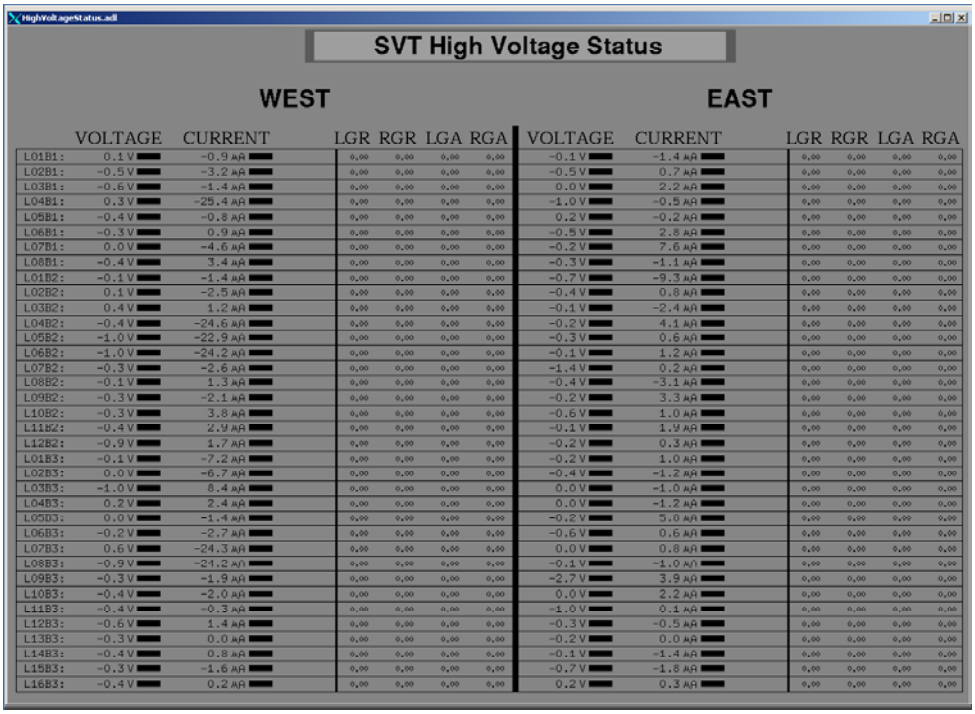


Figure 6. High Voltage Monitor Panel

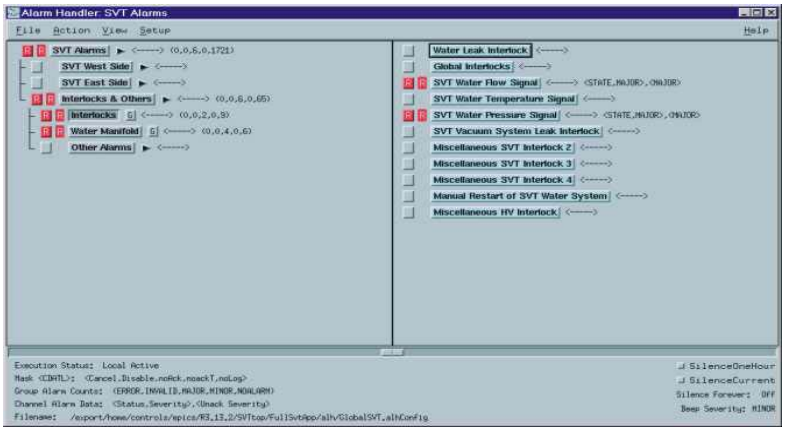
Alarm Handling

The color convention used by the slow controls and alarm handler is:

Color convention
Red=high alarm
Yellow=alarm
green=ok
black=ignore
white=connection lost to slow controls crate

The alarm handler should be running in its own desktop labeled “alarms”. If it is not running, then type "svt_alarms". This will bring up this small panel.

Double clicking in the center should bring up this panel. From here one can trace the source of the alarm.



Note: To temporarily shut off the beeping in case of an alarm condition, click on "setup" at the top of the above panel and click on "silence forever". After the source of the alarm has been fixed, go back and click on "silence forever" to re-enable the audio alarm.

Note the alarm condition in the above panel. This is typical when the water system is off and can be ignored. Usually, the water system should be running and an alarm condition must be acknowledged and action taken. A list of potential alarms and the correct response should follow in the “Alarm Responses” section of the **SVT Operations Handbook**.

Dating Taking (laser operation, pedestal run vs. data taking).

The only difference between pedestal and physics runs is whether the laser is enabled!

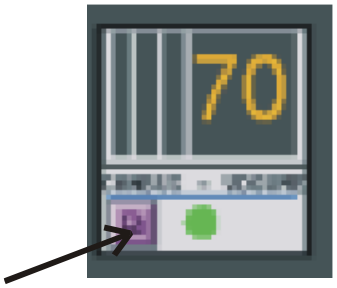
For a pedestal run click on “Pedestal” from the Detector Operator Panel. After a few moments under “SVT Run State” it should say “Pedestal” in green.

For a physics run click on “Physics” from the Detector Operator Panel. After a few moments under “SVT Run State” it should say “Physics” in green.

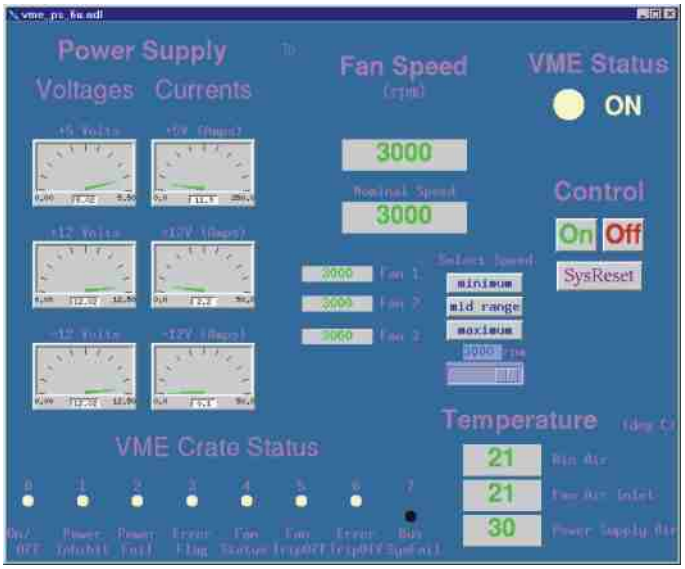
Reboot VME Slow Controls Crate (loss of connection)

Occasionally contact is lost with the VME slow controls crate in the SVT racks. Either one sees a pop-up window that says "network connection lost" and/or sees the various indicators in the slow controls program turn white (rather than green, red , or black).

There are two options to reboot. Option 1(preferred) is to go to the Expert's panel and click on the pink button on the icon shown below.



This should bring up the following panel.



Click on “SysReset”. It may require two attempts. DO NOT CLICK ON THE GREEN-ON OR RED-OFF BUTTON.

Option 2 (but less likely to work) is to go to the vdgvme desktop and from the console connected to the VME serial port, enter control-x to reboot. The can recognize the serial port connection by an “->” as a curser. If the terminal window running the serial port is not up, type “vdgvme” to make the connection.

Water System

The SVT water system provides cooling to the detector and is controlled via telnet to the NPS (Network Power Switch). The **SVT Water System Operating Procedure Document** in the **SVT Operations Handbook** describes how to turn on and off the water system via the NPS. Normally the water system is always running. Operators need only be familiar with the emergency shutdown procedure. Emergency shutdown is described in the subsection “SVT water system shutdown” under the section “Emergency Shutdown Porecedure” in this document.

SVT Experts

Call anytime during day.
Call in case of emergency after hours**.**

David Lynn x4560 451-6773
Christophe Suire x6151

An updated list of experts to call is kept in the **SVT Operations Handbook** under the section “SVT Contact Personnel”.

Troubleshooting

In a separate section of the **SVT Operations Handbook** a list of troubleshooting tips will be kept. These will be based upon experiences gained in running the detector.